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The effect of supplementing ZnO and Biotin on biochemical phenotypes of nursery pig microflora

The experiment used 96 crossbred pigs with average initial weight 5.89 ± 0.02 kg, and average age of 19 ± 1 days. The pigs were blocked by weight, sex, and lineage, and randomly assigned to 1 of 4 diets, for the duration of the 28-d study. The diets were created on a 2x2 factorial, for a total of 4 treatments, consisting of a uniform basal diet supplemented with: 0 or 3,000 ppm Zn as ZnO, and 0 or 440 ppb D-Biotin. Phase 1 diets were fed from day 1 to day 14, and were formulated with 22.5% CP and 1.6% total lysine. Phase 2 diets were fed from day 15 to day 28, and were formulated with 19.4% CP and 1.25% total lysine. Weekly fecal swabs were used to obtain the metabolic capacities and biochemical phenotypes of the pigs' colonic microflora over time and with various treatments. The readings were obtained and calculated using the Swedish Phene Plate technology. Independent of the treatment they were receiving, all pigs showed a decrease in metabolic capacity over time ($P < 0.01$). Colonic microflora in nursery pigs supplemented with ZnO showed higher metabolic capacities ($P < 0.01$). It was also found that the pigs supplemented with ZnO exhibited higher correlation values between the biochemical phenotypes of colonic microflora.